

NEW ENGLAND NOTE

RECORDS FOR *CAREX ROSTRATA* (CYPERACEAE)
IN NEW ENGLAND

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Carex rostrata Stokes is a circumboreal, hydrophytic sedge primarily restricted to Canada in North America. Its limited conterminous United States distribution includes the Great Lakes region and northwestern states (Kartesz 1999; Reznicek and Ford 2002). *Carex rostrata* has largely been treated as including *C. utriculata* Boott in Hook. by American authors. Fernald (1950) and Seymour (1982) provided infraspecific names for these taxa; however, the characters used in these and other treatments were inadequate to distinguish some material. As a result, many New England collections were identified only to the level of species (using the name *C. rostrata*). This has created a situation in which the name *C. rostrata* has been misapplied to collections of *C. utriculata*. Further, *C. rostrata* has been summarily excluded from New England by recent works covering this region (Gleason and Cronquist 1991; Kartesz 1999), though no systematic herbarium surveys have been performed to verify the presence or absence of this sedge in the northeastern United States. This note presents the results of recent field and herbarium surveys that have resulted in the discovery of four stations for *C. rostrata* in northern New England.

Carex rostrata and *C. utriculata* differ substantially in leaf morphology and anatomy (Reznicek and Ford 2002). However, some of the distinctions can be obscured on dried herbarium specimens (e.g., leaf color, leaf cross-sectional shape). Therefore, confident determinations rely on

presence/absence of papillae and stomate distribution on the leaves, features that require magnification to observe. These facts are likely, in part, responsible for the absence of previous reports of true *C. rostrata* in New England. As previously noted, *C. rostrata* was excluded from New England when it became customary to recognize it in the narrow sense (i.e., as separate from *C. utriculata*; Gleason and Cronquist 1991; Kartesz 1999).

The first confirmed location for *Carex rostrata* in New England was discovered by the second author and Mark Ward during field surveys of J. D. Irving property in northern Maine. The sedge was located in a backwater slough of the Big Black River, a tributary of the St. John River, in T14 R16 WELS. The section of the Big Black River that harbored *C. rostrata* is slow, tannic, and meandering with numerous oxbows that demonstrate fairly distinct zones of vegetation reflecting the degree of annual flooding. *Carex rostrata* occurred adjacent to an open pool within a mixed graminoid–shrub marsh community. Associated plant species included *C. stricta*, *C. utriculata*, *C. vesicaria*, *Sagittaria latifolia*, *S. cuneata*, *Scirpus atrocinctus*, *S. cyperinus*, and *Myrica gale*.

SPECIMEN CITATION: U.S.A. Maine: Aroostook Co., T14 R16 WELS, Big Black River oxbows, backwater emergent marsh w/ *Carex stricta*, *C. vesicaria*, *C. utriculata*, and *Calamagrostis canadensis*, 22 Aug 2002, A. Cutko & M. Ward s.n. (MAINE, MICH).

After learning of the discovery of *Carex rostrata* in Maine, the first author undertook herbarium surveys in regional museums in an effort to locate additional voucher specimens. This work was performed as part of the Herbarium Recovery Project, a two-year research project administered by the New England Wild Flower Society that examined herbarium records of rare and/or poorly known native tracheophytes in New England. Specimens from northern New England labeled as *C. rostrata* and *C. utriculata* were examined from GH, MAINE, NEBC, NHA, and VT. As *C. utriculata* is a relatively common sedge in New England, the herbarium surveys involved sorting through hundreds of specimens. Three collections of *Carex rostrata* were located—two from Maine and one from New Hampshire. The identifications were confirmed by Anton Reznicek (University of Michigan).

SPECIMEN CITATION: U.S.A. Maine: Aroostook Co., Ashland, Mud Pond, 17 Jul 1935, G. Chamberlain & R. Delano 836 (NEBC); Piscataquis Co. Spencer Pond, Aug 1871, Parlin s.n. (NEBC). New Hampshire: Coos Co., Pittsburg, Fourth Connecticut Lake, 9 Jul 1966, A. Hodgdon et al. 15005 (NHA).

Upon notification of a confirmed record of *Carex rostrata* in New Hampshire, the third author reexamined sedge collections from field surveys he had performed in the northern part of the state. He discovered a potential specimen of *C. rostrata* from Fourth Connecticut Lake, the site of Hodgdon's collection 23 years earlier. The specimen was examined by the first author who agreed with the initial determination (i.e., that the collection was true *C. rostrata*). Neither of the historical Maine locations have been revisited to determine if those populations of *C. rostrata* are still extant.

Fourth Connecticut Lake is a high-elevation tarn pond along the Canadian border in Pittsburg at the source of the Connecticut River (elevation 814 m). *Carex rostrata* was associated with acid to circum-neutral fen and marshy emergent border vegetation surrounding the pond. The fen consisted of floating mat (pH 5.5–6.2) and mud-bottom (pH 4.6–5.0) habitats dominated by dwarf shrubs, sedges, and *Sphagnum* mosses. Common tracheophytes included *Chamaedaphne calyculata*, *Carex lasiocarpa*, *C. oligosperma*, *C. canescens*, *C. magellanica* subsp. *irrigua*, *Triadenum virginicum*, and *Rhynchospora alba*. Less frequent species included *Menyanthes trifoliata*, *Rhododendron groenlandicum*, *Eriophorum virginicum*, *Utricularia cornuta*, *Drosera rotundifolia* var. *rotundifolia*, *Dulichium arundinaceum*, *Juncus pelocarpus*, *Sarracenia purpurea*, *Carex stricta*, *Lysimachia terrestris*, and *Kalmia polifolia*. Marshy border areas contained *Gentiana linearis*, *Eleocharis palustris*, *Comarum palustre*, *Nuphar variegata*, and *Sagittaria latifolia*.

SPECIMEN CITATION: U.S.A. New Hampshire: Coos Co., Pittsburg, Fourth Connecticut Lake, 27 Jul 1989. *D. Sperduto 151* (NHA).

Carex rostrata appears to be rare and local in New England, with the sparse distribution typical of northern species of *Carex* at the southern limit of their range (Reznicek 1989). However, known collections are from relatively unspecialized habitats, suggesting this sedge may be discovered in additional locations. *Carex rostrata* has relatively narrow leaves, mostly less than 4.5 mm wide with dense and minute papillae (view at 20× or higher magnification) on the adaxial surface of the leaf blades. The stomata are usually found only on the adaxial surface (rarely some scattered on the abaxial surface in some individuals; view at 40–50× magnification; Anton Reznicek, pers. comm.). The leaf blades are white-green adaxially and U-shaped in cross-section. *Carex utriculata*, on the other hand, is marked by relatively wide leaves mostly more than 4.5 mm wide that are usually smooth on the adaxial surface. Rare

specimens will have one or more leaves covered adaxially with tiny scabrules, which provide a rough texture to the leaf. The scabrules are easily visible at 10× magnification and are more sparsely distributed than the papillae of *C. rostrata*. *Carex utriculata* is further characterized by flat or V-shaped, green leaves with stomates distributed only on the abaxial surface.

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